

## ABSTRACT OF THE DISCLOSURE

In arrayed waveguide grating, optical communication system and optical communication system, when monitoring the main signal, it has heretofore been  
5 necessary to prepare demultiplexing parts in number corresponding to the number of channels to be monitored. Therefore, with an increase of the channel number the number of parts necessary for monitoring is increased to increase the size of the entire arrayed waveguide  
10 grating. In addition, the part number increase leads to the device cost increase. Higher order diffraction beams obtained from the wavelength multiplexed diffracted beam obtained in an arrayed waveguide grating from a plurality of different wavelengths are used for monitoring. Thus,  
15 it is possible to reduce the number of parts necessary for the monitoring and thus provide an arrayed waveguide grating, an optical transmission system and an optical communication system, which can suppress the size and cost increases as much as possible.